Curiosity and observations help solve a mystery

by Ted Bailey

"Then this past July I observed another American three-toed woodpecker drilling rows of horizontal holes in several birch trees from which sap was copiously flowing." Ted Bailey

"Nearly all our scientific understanding stems from observing and interrogating nature at some level. Nature as a teacher does not lecture or provide study guides. Instead, natural systems appeal to our innate curiosity, with the awesome and strangely beautiful compelling us to learn as best we can."

This statement by David P. Mindell, Dean of Science at the California Academy of Science in an article in Scientific American caused me to reflect on my own observations of nature and the reasons why I periodically write articles for the Refuge Notebook. I want to appeal to curiosity of the readers about their observations and hopefully make them more aware of and appreciate the natural world around them. Readers contacting me to ask further questions, providing additional information on a subject or merely thanking me for writing an interesting article are my best rewards.

I am always curious about observations for which I cannot find an immediate explanation. Sometimes when it is an unfamiliar animal or plant, I eventually find out its name and more information about it by consulting a field guide, searching the Internet or asking an expert in the field. Some observations however are more puzzling and may take longer—sometimes years—to resolve.

For example, over many years hiking and moose hunting on the Kenai Peninsula, I have sometimes come across a series of small horizontal holes in birch trees and could find no explanation for them. Perhaps you have seen them also. Some trees contained literally hundreds of rows of these small holes. Usually most of the small holes are old but a few may be fresh. I asked colleagues and searched the published literature for an explanation but without success. Then in the late summer of 2005 I came across literally hundreds of freshly-made holes in several adjacent birch trees. The leaking sap in the holes attracted numerous feeding yellowjackets and a few mourning cloak butterflies. But I doubted these rather fragile insects actually made the holes because the holes had been drilled deep into the bark. I suspected something else was responsible.

Two years later, in late summer 2007, I saw an American three-toed woodpecker fly to a nearby birch tree and begin pecking at the bark and feeding on the sap of recently drilled holes amongst many previously older-drilled holes. It was soon joined by two other three-toed woodpeckers that also fed at the holes.

Intrigued by my observation, I narrowed my literature search to American three-toed woodpeckers to see what others had reported. Surprisingly there was little information on sap feeding by this species, and apparently no one had ever reported them drilling into or feeding on the sap of birch trees. One person however, suspected that holes once attributed to feeding yellow-bellied sapsuckers in Interior Alaska, might have actually been made by American three-toed woodpeckers, although he apparently had not himself observed such behavior. Interestingly, yellow-bellied sapsuckers are not found or at most are extremely rare on the Kenai Peninsula and other species of woodpeckers and sapsuckers were also be ruled out.

I wrote up my observations for a peer-reviewed scientific journal and they were eventually published as a brief article in the spring of 2008 (Western Birds 34:171-175, 2008). Then this past July I observed another American three-toed woodpecker drilling rows of horizontal holes in several birch trees from which

sap was copiously flowing (see attached photograph).

I learned while reviewing the literature for my article that the European three-toed woodpecker—the counterpart of the American northern three-toed woodpecker—was more apt to feed on sap. One author speculated this came about because the sap-feeding niche in North America was already taken by several species of sapsuckers but others questioned this conclusion. And I also learned that birch trees were probably favored amongst other trees because the sap has a relatively high sugar content of 16%.

Although my original curiosity has been resolved, other unanswered questions still abound about this particular animal behavior. Why are only certain birch trees selected for feeding on sap and not the majority of birch trees? Are sap wells drilled every year or only during certain years for as yet unknown reasons? How long is the sugary sap fed upon? Is this woodpecker also responsible for other even smaller holes in rows or the stripping or narrow bands of bark especially on young birch trees? These questions are merely a small sample of the many that still await answers from curious observers in our natural world.

Ted Bailey is a retired Kenai National Wildlife Refuge wildlife biologist who has lived on the Kenai Peninsula for over 33 years. He maintains a keen interest in the Kenai Peninsula's wildlife and natural history. You can check on local birds or report your bird sighting on the Kenai National Wildlife Refuge Birding Hotline (907) 262-2300. Previous Refuge Previous Refuge Notebook columns can be viewed on the Web at http://www.fws.gov/refuge/kenai/.